

IN THE CLAIMS:

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~~Claims~~ What is claimed is:

The following is a complete listing of claims in this application.

Claims 1-9 (canceled).

10. (new) Vane diffuser for placement in a separator for separating at least one of a liquid phase and particulate material from a gas flowing through the vane diffuser in a flow direction, the vane diffuser comprising:

a top plate;

a bottom plate;

a plurality of curved, parallel vanes disposed between the top plate and the bottom plate and defining diffuser channels therebetween, each of said vanes having a thickness which increases continuously in the flow direction to a maximum, then continuously decreases resulting in a cross sectional area of the diffuser channels which expands evenly, said diffuser channels leading to an outlet in the flow direction; and

a distribution chamber delimited by the top plate, the bottom plate and the plurality of curved, parallel vanes, the distribution chamber having means for communicating with an inlet pipe stub of the separator to admit the gas into the vane diffuser and the outlet therefrom.

11. (new) Vane diffuser as claimed in claim 10, wherein each of the vanes is defined by a leading edge, a trailing edge and a center line from the leading edge to the trailing edge and having a length which defines vane length, and

wherein the each of the vanes has a maximum thickness which is from 20 to 70% of the vane length.

12. (new) Vane diffuser as claimed in claim 10, wherein each of the vanes is defined by a leading edge, a trailing

edge and a center line from the leading edge to the trailing edge and having a length which defines vane length, and

wherein each vane has a ratio of maximum thickness to vane length of 0.05-0.15.

13. (new) Vane diffuser as claimed in claim 10, wherein each of said vanes has a cavity that communicates with a pressure side through perforations or slots, to allow thereby at least a portion of any liquid or particulate material settling on the pressure side to flow into said cavity and below the vane diffuser through a passage in the bottom plate.

14. (new) Vane diffuser as claimed in claim 10, wherein an accumulation space for liquid flowing through a passage in the vane diffuser is arranged below the bottom plate.

15. (new) Vane diffuser as claimed in claim 14, additionally comprising a channel arranged to drain liquid from the accumulation space.

16. (new) Vane diffuser as claimed in claim 10, additionally comprising side walls arranged circumferentially around the of the top plate, such that any accumulation of liquid runs down in front of the outlet of the diffuser channels.

17. (new) Vane diffuser as claimed in claim 16, additionally comprising a draining channel constructed and arranged to drain liquid accumulated on the top plate.

18. (new) Vane diffuser as claimed in claim 10, wherein the diffuser channels are arranged to have an expanding cross sectional area to reduce gas flow velocity between the distribution chamber and the outlet, the cross sectional area adjacent the distribution chamber being less than the cross sectional area the outlet.

19. (new) A separator for separating at least one of a liquid phase and particulate material from a gas flowing in a flow direction, the separator comprising:

a separation tank comprising an inlet pipe stub to admit the flowing gas into the tank, a lower outlet for discharge of a heavier separated fraction, and an upper outlet for discharge of a lighter separated fraction; and

a vane diffuser arranged within the tank for retarding and diverting flowing fluid upon entry into the tank, the vane diffuser comprising:

a top plate;

a bottom plate;

a plurality of curved, parallel vanes disposed between the top plate and the bottom plate and defining diffuser channels therebetween, each of said vanes having a thickness which increases continuously in the flow direction to a maximum, then continuously decreases resulting in a cross sectional area of the diffuser channels which expands evenly, said diffuser channels leading to an outlet from the vane diffuser in the flow direction; and

a distribution chamber delimited by the top plate, the bottom plate and the plurality of curved, parallel vanes, the distribution chamber having means for communicating with the inlet pipe stub of the separator to admit the gas into the vane diffuser and the outlet therefrom.